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(54) Title: IMAGE MODEL BASED ON N-PIXELS AND DEFINED IN ALGEBRAIC TOPOLOGY, AND APPLICATIONS THEREOF

DEFINING A PIXEL DIMENSION  $n$  TO PRODUCE  
A  $n$ -PIXEL IMAGE SUPPORT

6601

EXPRESSING THE  $n$ -PIXELS OF THE IMAGE  
SUPPORT ALGEBRAICALLY IN RELATION TO  
THE  $n$ -PIXEL DIMENSIONS

6602

PRODUCING A GEOMETRICAL COMPLEX  
INCORPORATING AT LEAST ONE  $n$ -PIXEL  
IMAGE SUPPORT

6603

EXPRESSING THE GEOMETRICAL COMPLEX  
ALGEBRAICALLY BY MEANS OF  $q$ -CHAINS

6604

EXPRESSING THE SCALAR VECTORS AND  
MATRICES BY MEANS OF THE COEFFICIENTS  
OF THE  $q$ -CHAIN

6605

EXPRESSING GLOBAL QUANTITIES WITH ALL  
 $q$ -PIXELS THROUGH  $q$ -COCHAINS  $F_q$   
COMPRISING ASSOCIATING GLOBAL  
QUANTITIES TO THE  $q$ -PIXELS AND ITS FACES

6608

(57) **Abstract:** A computational image model comprises an image support including a structure of  $n$ -pixels comprising pixel faces, quantities related to image features, and an algebraic structure relating the quantities to the  $n$ -pixels and/or pixel faces, the algebraic structure comprising algebraic operations defining a relation between the quantities. A method of computationally modelling an image comprises producing an image support including a structure of  $n$ -pixels comprising pixel faces, defining quantities related to image features, and relating the quantities to the  $n$ -pixels and/or pixel faces through an algebraic structure, and relating the quantities to each other through algebraic operations.